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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,312	04/19/2004	Paul B. Corkum	PAT 892-2 US	9811

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EXAMINER	
DUPUIS, DEREK L	
ART UNIT	**PAPER NUMBER**
2883	

MAIL DATE	DELIVERY MODE
08/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,312	CORKUM ET AL.	
	Examiner	Art Unit	
	Derek L. Dupuis	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 6-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 6-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/29/2007 have been fully considered but they are not persuasive. In pages 5 and 6, applicant argues that the prior art fails to disclose or render obvious an optically written connection path defined throughout its length by a modified refractive index. Applicant has placed emphasis on the phrase "throughout its length" and has provided dictionary definitions to further solidify and define the scope of the claim language. The examiner disagrees with applicant assertion that this limitation is not disclosed in the prior art.

2. Flory et al teach a waveguide that is formed in a photonic crystal structure. The photonic crystal includes a periodic array of posts (or holes). The periodicity of the holes prevents light from propagating in the crystal's bandgap. Flory et al teaches that by creating an array of defect posts/holes in the periodic structure, a waveguide can be created along the array of defects to propagate light. Li et al teach that the defects can be created by modifying the refractive index of a post/hole. The waveguide is formed along this array of modified posts/holes. The entire waveguide is defined substantially throughout its length by the modified posts/holes that have a refractive index different from the bulk refractive index. While these defects are periodically spaced along the waveguide length, the entire waveguide as a whole entity exists and is defined by these periodically spaced defects in the periodic lattice of the crystal.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3 and 6-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Flory et al (US 2004/0126055 A1)*** in view of ***Li et al (US 2003/0223720 A1)***.

5. Regarding claims 1, 3, 6-10, 13, and 14, Flory et al teach an optical connector comprising a three-dimensional optically-transmissive bulk dielectric (31) with an input (32) path and an output path (33, 34) written within the bulk dielectric (31). The input path (32) and the output path (33, 34) are connected so as to transmit a light signal between an input component and an output component. The three-dimensional bulk dielectric is a prism as seen in figures 1 and 2. The connection paths are waveguides and the connection paths are bent as shown in figure 2. Flory et al also teaches that the connection path can be a straight through path. The photonic structure results in local modifications in the refractive index thus creating the waveguiding structure. The connection path is defined substantially throughout its length by the modified posts/holes that have a refractive index different from the bulk refractive index. The photonic crystal waveguide has a high degree of efficiency with low losses including a low loss at a 90 degree bend. Flory et al also teach that a plurality of connection paths can be written within the bulk dielectric to connect multiple inputs and outputs. See paragraphs 4, 5, 26-30, and 51-57.

6. Flory et al do not explicitly state that the defect sites that make up the optical connection path are optically written within the bulk dielectric. Li et al disclose a process for creating defect sites in a photonic crystal where a beam of laser energy is directed upon a hole/post of the photonic crystal to modify the index of refraction to permit light transmission (see abstract).

7. It would have been obvious to one of ordinary skill in the art at the time of invention to write the connection path taught by Flory et al using an optical writing process as taught by Li et al. Motivation to do this would be the suggestion by Li et al to create the defect regions that make up the connection path by "modifying selected posts" of the periodic crystal (see paragraph 56).

8. Regarding claims 2, 11, and 15, Flory et al in view of Li et al teach an optical connector as discussed above. Flory et al do not explicitly teach that the bulk dielectric material is made of glass. However, it would have been obvious to one of ordinary skill in the art at the time of invention was made to use glass as the dielectric material since the examiner takes official notice of the equivalence of glass and other dielectric materials for their use in the optics art and the selection of any of these known equivalents to form a waveguiding structure would within the level of ordinary skill in the art.

9. Flory et al teach that the bent connection path includes two orthogonal (90 degree) waveguides disposed in the bulk dielectric. However, Flory et al do not explicitly teach that the connection between the waveguides is a TIR connection with a polished surface. Applicant has admitted in the reply filed on 4/10/2006 that "the selection of a TIR connection or a photonic crystal structure are well-known equivalents for providing a bent waveguide while limiting bending losses at the turn." Therefore, the selection of any one of these admitted equivalents would be "a matter of design preference" and one of ordinary skill in the art would have found it obvious to substitute a TIR connection for a photonic crystal structure.

10. Flory et al teach that multiple connection paths can be duplicated in the bulk dielectric. It would have been obvious to one of ordinary skill in the art at the time of invention to use a

plurality of stacked connectors to form a connector assembly since it has been held that the mere duplication of the essential working parts of a device involves only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

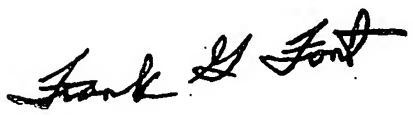
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Thursday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Derek L. Dupuis
Group Art Unit 2883



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